

Some remarks on

S/141/62/005/001/004/024
EO52/E314

absorption. The paper is concluded with a discussion of cases where the above results may not hold in the presence of spatial dispersion. The paper is entirely theoretical. No numerical computations are reported. ✓
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ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut
pri Gor'kovskom universitete (Scientific
Research Radiophysics Institute of Gor'kiy
University)

SUBMITTED: November 1, 1961

Card 2/2

GERSHMAN, B.N.; TRAKHTENGERTS, V.Yu.

Possibility of using data on dispersions of whistling atmospherics for estimating concentrations in solar corpuscular streams. *Geomag. i aer.* 2 no.4:653-658 J1-Ag '62. (MIRA 15:10)

1. Radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete.

(Solar radiation)

(Radio waves)

GERSHMAN, B.N.

Formation of ionospheric inhomogeneities in the F-layer. Geomag.
i aer. 3 no.5:878-886 S-O '63. (MIRA 16:11)

1. Radiofizicheskiy institut pri Gor'kovskom gosudarstvennom
universitete.

ACCESSION NR: AP4042918

S/0057/64/034/008/1351/1353

AUTHOR: Gershman, B.N.

TITLE: Concerning an approximation in the theory of propagation of ordinary waves in plasma in a strong magnetic field

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.8, 1964, 1351-1353

TOPIC TAGS: magnetic field plasma effect, electromagnetic wave phenomenon, electromagnetic refraction, plasma diagnostics

ABSTRACT: From the known expression for the refractive index of the ordinary wave, in a uniform magnetized plasma when collisions, ion motions, and space dispersion are neglected, the author shows that when the following condition is also satisfied, $f_H^2 \sin^4 a / f_0^2 \gg f_0^2 \cos^2 a / f^2 \gg 1$, where f , f_0 , and f_H are the wave, Langmuir, and Larmor frequencies, respectively, and a is the angle between the wave vector and the magnetic field, the phase velocity is $c \cdot \cos a$ (c is the velocity of light in vacuo) and the group velocity is accordingly in the direction of the magnetic field and of magnitude c . This is reminiscent of the behavior of Alfvén waves, the group velocity of which is also in the direction of the magnetic field. The angle between the

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ACCESSION NR: AP4042918

group velocity of the ordinary wave and the magnetic field was calculated as a function of a under the less restrictive condition $f_{\parallel}^2 \cos^2 a / f^2 \gg 1$ for a number of values of the parameter $d = f_0^4 / f^2 f_{\parallel}^2$, and the results are presented graphically. Even for large values of d the angle between the group velocity and the magnetic field never exceeds $19^{\circ} 29'$. It is suggested that the circumstances noted above may find application to plasma diagnostics. Orig.art.has: 11 formulas and 1 figure.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom univoritete (Scientific Research Institute of Radiophysics at Gor'kiy University)

SUBMITTED: 20Jul63

ENCL: 00

SUB CODE: ME,EM

NR REF SOV: 003

OTHER:000

ACC NR: 10030552

SOURCE CODE: UR/0053/66/089/002/0201/0225

AUTHOR: Gershman, B. N.; Trakhtengerts, V. Yu. 64

ORG: Scientific Research Radiophysics Institute of the Gor'kiy State University
(Nauchno-issledovatel'skiy radiofizicheskiy institut Gor'kovskogo gosudarstvennogo universiteta)

TITLE: Very low frequency radio emission from the upper atmosphere and its connection with other geophysical phenomena

SOURCE: Uspekhi fizicheskikh nauk, v. 89, no. 2, 1966, 201-225

TOPIC TAGS: vlf, vlf propagation, upper atmosphere, exosphere, artificial earth satellite

ABSTRACT: This is a review, with emphasis on the results obtained since 1960, of the information concerning the state of the exosphere which can be extracted from radio signals of variable frequency between 1 and 20 kcs (whistlers), especially the radio waves generated in the exosphere directly. The most essential results of recent years, obtained by reduction and analysis of whistler observations, are first reviewed. The different types of vlf radiation (hiss, chorus, and discrete radiation) are described and the results of systematic observations obtained with land based equipment and satellites are presented. This is followed by problems involved in the generation of different types of whistlers and an analysis of the significance of vlf noise in the dynamics of the earth's outer radiation belt, and the role of vlf radiation in the

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UDC: 551.59 + 621.396.1

ACC NR: AF6028552

dynamics of the earth's radiation belts. It is concluded that the recent experimental results can throw light on the origin of different types of vlf radiation, and that there are important grounds for assuming that this radiation is produced by high-energy particles in the earth's outer radiation belt and in the aurora zones. There are also reasons for assuming that the vlf radiation plays an important role in the dynamics of the earth's radiation belts. Several problems whose solutions will contribute to clarification of the nature of vlf radiation are listed. Orig. art. has: 6 figures and 35 formulas.

SUB CODE: ~~21~~ 04/ SUBM DATE: 00/ ORIG REF: 041/ OTH REF: 090

Card

2/2

ACC NR: AP7005099

SOURCE CODE: UR/0203/66/006/002/0246/0254

AUTHOR: Gorshman, B. N.; Grigor'yev, G. I.

ORG: Radio Physics Institute, Gor'kiy State University (Radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete)

TITLE: Nonhomogeneities of electron concentration arising during the propagation of moving ionospheric inhomogeneities

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 2, 1966, 246-254

TOPIC TAGS: F layer, ionosphere

ABSTRACT: This investigation is devoted to problems in the theory of formation of nonhomogeneities of electron concentration arising during the propagation of internal, gravitational waves at altitudes corresponding to the F-layer of the ionosphere. The conclusions drawn from this theory are used in the interpretation of patterns associated with the predominant orientation of the directions of propagation of moving disturbances. An estimate is made of the degree of effectiveness of the formation of nonhomogeneities, taking into account the dependence of the concentration of molecules on altitude. The authors thank Ye. Ye. Tsedilina and A. V. Gurevich for permission to view their work before its publication. Orig. art. has: 2 formulas.
JPRS: 38,677

SUB CODE: 04 / SUBM DATE: 15Jan65 / ORIG REF: 005 / OTH REF: 009

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UDC: 550.388.2

GERSHMAN, B. N.

USSR/Physics - Ionosphere

Jan 52

"Spreading of Electromagnetic Impulses Propagated
in the Ionosphere," B. N. Gershman

"Zhur Tekh Fiz" Vol XXII, No 1, pp 101-104

Acknowledges the assistance of Prof V. L. Ginzburg
during the course of this work. Sets up subject
eqs and calculates the 2d approximation of impulse
and spread, using the Fourier transform and Airy
functions. Submitted 23 Feb 51.

206T106

GERSHMAN, B.N.

Propagation of electromagnetic waves in plasma subjected to a magnetic field taking into account the thermal motion of electrons.

Zhur. eksp. i teor. fiz. 24 no.6:659-672 Jo '53. (MIRA 7:10)

(Electromagnetic theory)

Gorodnitskiy, B. L. -- "Kinetic Theory of the Propagation of Electromagnetic Waves in Plasma in a Magnetic Field." *Sov. Phys.-Usp.*, Gorkiy State U., Gorkiy, 1963. (Referativnyy Zhurnal--Fizika, January 54)

SO: SU: 163, 22 July 1964

USSR / Radio Physics. Propagation of Radio Waves.

Abs Jour : Radiotekhnika i Elektronika No 3, 1987, No 7510

Author : Gorshunov, B.M.

Institution: Moscow University, USSR

Title : Kinetic Theory of Magnetohydrodynamic Waves

Orig Pub : Zh. eksperimental'noy fiziki, 1983, 24, No 4, 453-465

Abstract : The propagation of magnetohydrodynamic waves in the direction of a constant magnetic field is investigated by the kinetic-equation method, which makes it possible to take into account the effect of the thermal motion of the particles in the gas. This effect should be substantial in the propagation of magnetohydrodynamic waves in media with sufficiently high kinetic temperature, for example, in the sun's atmosphere where even the medium thermal velocities of the ions can be of the same order or higher than the phase velocities of the waves under consideration. The author starts out with the kinetic equations for the ion distribution functions $F_i(x_i, r_i, t)$ of the ions and $F_e(x_e, r_e, t)$ of the electrons in the electrodynamic equations,

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USSR / Radi. Engng. Propagation of Radio Waves

1-1

Ass Jour : Izv. Zhur - Fizika No 3, 1987, No 7310

Abstract : in the ionosphere or in interstellar gas are negligible. For waves inside the sun allowance for the thermal motion of the particles is substantial in the determination of the value of the phase velocity.

Bibliography, 12 titles.

Card : 5/5

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Category : USSR/Radiophysics - Application of radiophysical methods

I-12

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 1989

waves in the corona is quite possible. The possibility of the longitudinal waves becoming transformed into transverse ones is considered, as are the conditions under which the radio waves can leave the corona. If waves propagate in plasma located in a magnetic field, the radiation may be "sucked out" from the corona region (taking into account the thermal motion of the electrons). If the plasma wave propagates at an angle to the direction of the gradient of the electron concentration, the radio waves may leave the corona also in the absence of magnetic fields. Such a wave may be produced under the influence of an external agent. If the action of the agent is of short duration, the radio waves will also last a short time (type III of radiation). Radiation of type IV is apparently produced by streams of fast particles, which excite plasma waves. The works in which the drift of the plasma is believed to be the energy source causing the growth of the waves is critically reviewed. In the discussions, I.S. Shklovskiy emphasized that the results of the observations indicate that no one mechanism is capable of explaining all types of radio waves, although most phenomena are apparently due to plasma oscillations. V.L. Ginzburg indicated the difference between the mechanisms of radiation of relativistic electrons from the galaxy and from the sun; in the former case, the angle between the electron velocity and the magnetic field is large, and in the second case it is small. Bibliography, 52 titles.

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CIA-RDP86-00513R000514920006-4"

GERSHMAN, B. N.
USSR/Physics - Ionosphere

Card 1/1 Pub. 22 - 10/60

Authors : Gershman, B. N. and Ginzburg, V. L., Memb. Corresp. of the Acad.
of Scs. of the USSR

Title : About the mechanism of the formation of ionospheric heterogeneity

Periodical : Dok. AN SSSR 100/4, 647-650, Feb 1, 1955

Abstract : Convective instability as a cause of the heterogeneity of the ionosphere is discussed. Thermal conductivity, viscosity of the ionosphere and magnetic field effect are considered as possible factors in the formation of such an instability. Fifteen references: 5 USSR and 10 British (1930-1954).

Institution : Physico-Technical Research Institute of the Gorkiy State University

Submitted :

USSR / Radiophysics, Radio-Waves ~~Reception~~ Propagation

1-8

Abs Jour : Ref Zhur - Fizika, No 5, 1957, No 12531

Author : Gershman, B.H.

Inst : Gor'kiy University, USSR

Title : Diffusion in the Ionosphere

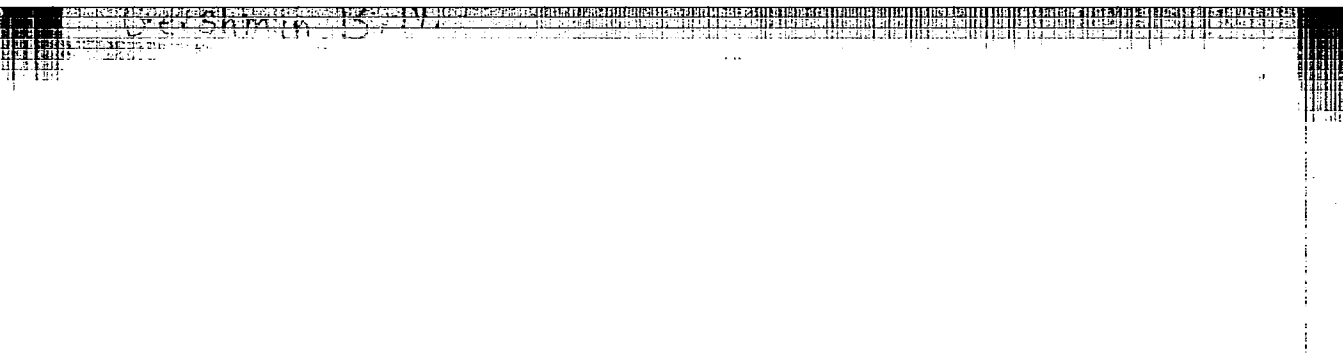
Orig Pub : Radiotekhn. i elektronika, 1956, 1, No 6, 720-731

Abstract : The author considers the diffusion of charged particles in an incompletely ionized isothermal quasi-linear gas of the ionosphere type taking into account the influence of an external constant magnetic field H_0 . The equations of motion are used for medium electron and ion velocities. The thermal motion of charged particles is taken into account in an approximate manner, by introducing partial pressure of the electron and ion gas. The general diffusion equations are

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RADIOTEKNIKA

USSR/Physics of the Atmosphere - Upper Layers of the Atmosphere. Ionosphere, M-6

Abst Journal: Referat Zhur. Fizika, No 12, 1956, 36222

Author: Gershman, B. N., Ginzburg, V. L.

Institutions: None

Title: On the Effect of the Magnetic Field on the Convective Instability
in the Atmospheres of Stars and in the Earth's Ionosphere

Original

Periodical: Uch. zap. Gor'kovsk. un-ta, 1956, 30, 3-29

Abstract: Analysis of the problem of the effect of the magnetic field on the convective instability under conditions when the electric conductivity is anisotropic (exactly what occurs in the ionosphere and under certain astrophysical conditions). It is shown that in the earth's ionosphere, by virtue of the presence of a considerable number of molecules, the magnetic field practically hardly changes

USSR/Electronics - Gas Discharge and Gas-Discharge Instruments, H-7

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35156

Author: Gershman, B. N.

Institution: None

Title: On the Problem of the Convective Instability in a Magneto-Active Fully Ionized Medium

Original

Periodical: Uch. zap. Gor'kovsk. un-t., 1956, 30, 30-40

Abstract: Discussion of the problem of the effect of the magnetic field on the occurrence of convection of an electron-ion plasma under conditions where the effect of the anisotropy of the electric conductivity, the heat conductance, and the viscosity exert a substantial influence. The work is a continuation of a preceding one (Referat Zhur - Fizika, 1956, 36224), in which only the anisotropy of the electric conductivity and of the heat conductivity are taken into account. Two particular cases are considered: when the direction of the permanent magnetic field is the same as the direction of the acceleration

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USSR/Electronics - Gas Discharge and Gas-Discharge Instruments, E-7

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35156

Abstract: of gravity, and when these directions are mutually perpendicular.
It is shown that in the latter case the occurrence of convection is facilitated substantially both because of the effect of anisotropy of heat conductivity, as well as because of the effect of the anisotropy of the viscosity.

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SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1894
 AUTHOR GERSMAN, B.N.
 TITLE Notes on the Waves in a Homogeneous, Magnetic, Active Plasma.
 PERIODICAL Zhurn.eksp.i teor.fiz, 31, fasc.4, 707-709 (1956)
 Issued: 1 / 1957

At first some works dealing with this subject are cited. However, on this occasion the author deals only with a paper by J.H.PIDDINGTON, Phil.Mag.46, 1037 (1955) on high-frequent waves (ordinary and extraordinary waves, plasma waves). The author endeavors to clear up the connection between the various types of normal waves with greater accuracy than this was done by PIDDINGTON. At first an equation is derived from the equations of electrodynamics and from the quasihydrodynamic equations of motion in consideration of electron pressure, and this equation is investigated for the nonrelativistic case $\beta_e^2 \ll 1$. $\beta_e = \sqrt{\mathcal{K} T/mc^2}$ is the ratio between the average thermal velocity of the electrons and the light velocity c . This inequation is well suited only for the practically most interesting cases of the ionosphere ($\beta_e^2 \sim 10^{-7}$) and the solar atmosphere ($\beta_e^2 \sim 10^{-4} - 10^{-5}$). Here only the behavior of the waves in the special cases $\alpha = 0$ and $\alpha = \pi/2$ is investigated. Expressions for the refraction index of the ordinary, extraordinary, and plasma waves propagated in the direction of the magnetic field are obtained. The occurrence of the plasma wave is connected with taking heat motion into account. For the characterization of the behavior of waves it is very useful and important to study the be-

Zurn.eksp.i teor.fiz, 31, fasc.4, 707-709 (1956) CARD 2 / 2 PA - 1894

havior of the curves for the square of the refraction index at fixed values of β_e and u . Here it holds that $u = \omega_H^2 / \omega^2$ and ω_H denotes the gyrofrequency of the electrons. In connection with the case $\alpha = 0$ (α - angle between the magnetic field \vec{H}_0 and the direction of propagation k) each wave type has its own corresponding dispersion curve. However, $\alpha = 0$, is an exceptional case and at $\alpha \neq 0$ it becomes impossible to characterize the behavior of only one single type of waves by a single steady curve in the case of all n^2 . A diagram illustrates these curves for $\alpha = \pi/2$, which are discussed. The peculiarities found on this occasion apply not only in the case of $\alpha = \pi/2$, but also in the case of the other $\alpha \neq 0$. - The problems dealt with here can also be investigated on the basis of the method of the kinetic equation. From the kinetic investigation there follows the conclusion drawn as to the possibility of damping. The nature of this damping consists in the influence exercised by the heat motions of the particles on the propagation of waves. However, this mechanism is not effective if the conditions mentioned are satisfied. For slightly damped waves it is possible to obtain an equation that is analogous to the quasihydrodynamic equation; it is written down here. The radials of this equation furnish the correct solution of the problem if the conditions for the inefficacy of the damping caused by the motion of heat are satisfied. The plasma waves are slightly damped only in the neighborhood of a certain point.

INSTITUTION: State University Gor'kiy

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107-87-2

1. The 1967 VHF Propagation (Dal'noye rasprostraneniye UKV) Radio, 1967, Nr 5, pp 22-23 (USSR)

2. Recently a conference on long-distance vhf propagation was held in Moscow. It was organized by these three organizations: Nauchno-tekhnicheskoye tsentrulnoye radiotekhniki i elektrosvyazi imeni A.S. Popova (Scientific and Technical Center of Radio-Engineering and Electrotechnical Communication), Nauchnyy sovet po radiofizike i radiotekhnike AN SSSR (All-Union Scientific Council for Radiophysics and Radio Engineering, AS USSR), Institut radioelektroniki i elektroniki AN SSSR (Institute of Radio Engineering and Electronics, AS USSR). Over 250 persons took part in the conference. The conference, among them scientists and professors from Leningrad, Moscow, Gorkiy, Odessa, Tomsk, and other cities. Fifteen reports were delivered and discussed, of which 6 were devoted to vhf tropospheric scatter propagation. Professor A.G. Arenberg, Doctor of Technical Sciences, opened the conference. A brief outline of today's investigations and uses of tropospheric scatter is presented in the article. Professor A.N. Kazantsev delivered the article "The Diffused Propagation of Meter Radio Waves in the Ionosphere" in which he briefly reviewed the materials of the Eighth Plenary Conference of the International Consultative Committee for Radio (Warsaw, September 1966). The USSR and Canadian commercial scatter-propagation communication lines were mentioned.

AUTHOR GERSHMAN, B.N., GINSBURG, V.L., SENICOV, N.G. 53-4-4/7
 TITLE The Propagation of Electromagnetic Waves in a Plasma (in the Ionosphere).
 Rasprostraneniye elektromagnitnykh voln v plazme (ionosfere) -Russian).
 PERIODICAL Uspekhi Fiz. Nauk, 1957, Vol 61, Nr 4, pp 561-612 (U.S.S.R.)
 Received 6/1957 Reviewed 7/1957
 ABSTRACT Starting out from the monograph by Ya.L.Al'pert, V.L.Ginsburg, El.Feynberg
 "The Propagation of Radio Waves" (Rasprostraneniye radiovoln - Gostekhizdat,
 1953, the paper under review deals with some problems of this field which
 have been clarified to a certain extent since the publication of the mono-
 graph. The consideration of the heat motion of electrons in a homogeneous
 medium in the magnetic field leads to the occurrence of plasma waves, the
 consideration of the heat motion of ions, on the other hand, results in
 low-frequency magnetohydrodynamic and quasi-acoustic waves, both with dis-
 persion. In inhomogeneous media it is possible that we have cases where the
 approximation of geometrical optics is no more permissible and where an in-
 teraction of waves takes place which would be independent in the homogeneous
 or quasi-homogeneous case. This is the case in the absence of a magnetic
 field at vertical incidence in the proximity of the reflection point and
 at oblique incidence in the proximity of the point $(\alpha) = 0$, at the exis-
 tence of a magnetic field at a small angle between the wave normal and
 the magnetic field (multiplication of the reflected radio signals), and at
 the beginning of the layer where the concentration of the electrons still is
 small. For the latter case the paper under review computes the boundary

GERSHMAN, B.N.

~~Effect of~~ the magnetic field on turbulent instability in the
ionosphere. Nauch. dokl. vys. shkoly; fiz.-mat. nauki no.1:
114-118 '58. (MIRA 12:3)

1. Gor'kovskiy nauchno-issledovatel'skiy radiofizicheskiy institut.
(Ionosphere) (Magnetic fields)

GERSHMAN, I.I.; KUKHAREV, M.N.

Investigation of fuel atomization in a laboratory apparatus.
Avt. i trakt.prom. no.2:22-25 F '56. (MLRA 9:6)

1.Nauchno-issledovatel'skiy avtomotarnyy institut.
(Fuel--Testing)

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KHANIN, N.S.; kandidat tekhnicheskikh nauk; KALISH, G.G., doktor tekhnicheskikh nauk; ANDRONOVA, T.B., kandidat tekhnicheskikh nauk; KUKHAREV, M.N., kandidat tekhnicheskikh nauk; GERSHMAN, I.I.; CHAPKEVICH, V.A., kandidat tekhnicheskikh nauk; YERMOLAYEV, P.S.

Review of the book "Internal combustion engines," Edited by A.S. Orlin, N.S. Khanin and others. Avt. 1 trakt. prom. no.7: 45-46 J1 '56. (MLRA 9:10)

1. Nauchno-issledovatel'skiy avtomotornyy institut.
(Gas and oil engines) (Orlin, A.S.)

AUTHOR: Sviridov, Yu. B., Candidate of Technical Sciences SCV/30-56-9-04/51

TITLE: Combustion and Formation of the Mixture in Diesel Engines (Sgoraniye i smeseobrazovaniye v dizelyakh) Conference in Moscow (Konferentsiya v Moskve)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, Nr 9, pp. 115 - 117 (USSR)

ABSTRACT: The Laboratoriya dvigateley Akademii nauk SSSR (Engine Laboratory of the AS USSR) convened a conference which took place from June 10 to June 12. Apart from Soviet scientists from various cities of the USSR scientists from China, the German Democratic Republic and Czechoslovakia participated in the conference. Theoretical, experimental and methodical problems were treated. The following reports were delivered: I.I. Gershman, Ye.I. Gulin spoke about the influence of spraying on the process of combustion. V.Ya. Basevich on the empiric law of combustion of fuel drops in connection with spraying in the air current. Yu.B. Sviridov, D.I. Ryabov recommended a new diffusion kinetical model for the ignition and combustion of sprayed fuel.

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Combustion and Formation of the Mixture in Diesel Engines. SOV/30-56-9-44/51
Conference in Moscow

A.N.Voinov spoke about self-ignition of homogeneous mixtures.
R.V.Mokhov about the influence of chemical admixtures to
the fuel on retarded ignition in the Diesel engine.

A.S.Sokolik, O.A Machalicky (Czechoslovakian scientist)
reported on the physico-chemical basis of the so-called
M-process in Diesel engines.

N.R.Briling on an improvement of the stroke of Diesel engines
by the construction of motors with short stroke.

A.S.Sokolik, Ye.S.Semenov dealt with the investigation of
the working cycle in the cylinder of the engine by means of
a compensated thermo-anemometer.

M.S.Khovakh investigated the influence of air turbulences
on the torch formation of the fuel in the case of injection
by means of the kinematographical method.

V.Ye. Mazing spoke about screening of the intake valve.

B.S.Stechkin about heat production in the engine and its
influence on the stroke.

I.I.Vibe, N.K.Arslanov, Z.M.Minkin, K.I.Genkin and others
reported on the problem mentioned by Stechkin.

A.S.Sokolik, V.P.Karpov dealt with the antechamber torch

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Combustion and Formation of the Mixture in Diesel
Engines. Conference in Moscow

SCV/30-58-9-24/51

ignition as basis of a new type of engines.
V.N.Svobedov recommended a new method of controlling
the process of combustion in the Diesel engine.
Films about the process of combustion were shown which
were produced by M.D.Apashev in the Laboratoriya dvigateley
(Engine Laboratory). The following items were regarded as the
principle trends in the development of Diesel engines:
increase of the power output per liter of the engine by
means of a supercharger, increase of the number of revolutions
as well as fuel concentration. On the occasion of the 100th
anniversary of Rudolf Diesel (Rudol'f Dizel) I.A.Men'shikov
spoke about Diesel's life and work.

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SOV/113-58-11-14/16

AUTHOR: Gershman, I. I., Candidate of Technical Sciences

TITLE: A Conference on the Combustion and Carburation in Compressed-Ignition Engines (Konferentsiya po sgoraniyu i smesobrazovaniyu v dvigatelyakh s vosplameneniyem ot szhatiya)

PERIODICAL: Avtomobil'naya promyshlennost', 1958, Nr 11, pp 43 - 45, (USSR)

ABSTRACT: The manifold problems involved with an increase in the liter capacity in diesel engines by, e.g. an increase in rpm, were the subject of the conference on the combustion and carburation in diesel engines convoked by the AS USSR in June 1958. The conference was attended by representatives of 78 research and training institutions and enterprises of the USSR, and by guests from the Satellite countries. A total of 30 papers and communications previously given to the attendants for study were discussed. Theoretical problems of the physical phenomena of the processes within automobile and other combustion engines were treated by Academician B.S. Stechkin, Professor A.S. Sokolik, Candidates of Technical Sciences A.I. Serbinov and Yu.B. Sviridov. R.M. Mokhov was concerned with problems of the cetane number. The paper of Prof. A.S. Sokolik and V.I. Karpov dealt with the pre-combustion chamber fuel-spray ignition principle, and

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A Conference on the Combustion and Carburation in Compressed-Ignition Engines

its practical application. Candidate of Technical Sciences L.A. Gusak denied the decisive role of the speed and temperature of the stream leaving the prechamber. Several papers were devoted to the motion of the air in the combustion chamber. A.S. Sokolik and Ye.S. Semenov have conducted research on a single-cylinder engine and measured the changes in speed of cyclic currents by aid of an electro-thermoanemometer. The vortex spinning around the cylinder axis was considered by Candidate of Technical Sciences V.Ye. Mazing. Candidate of Technical Sciences M.S. Khovakh presented the calculatory and analytical characteristic of the motion of the air in the turbulence chamber. The ETA-5A electrothermoanemometer for measuring the pulsation speed of a gas flow was designed by P.V. Chebyshev in the Vsesoyuznyy energeticheskiy institut imeni Lenina (All-Union Power Institute imeni Lenin) several years ago, and now has been supplemented by a device permitting the determination of the turbulence characteristic of gas motion including temperature and pressure influences. This device was designed by Ye. S. Semenov. Candidate of Technical Sciences N.N. Ivanchenko reported on research work in the Tsentral'nyy nauchno-

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SOV/113-58-11-14/16

A Conference on the Combustion and Carburation in Compressed-Ignition Engines

issledovatel'skiy dizel'nyy institut (Central Scientific Diesel Research Institute) on an improvement of the operation process of engines with cylinders of 230 and 180 mm diameter, having the combustion chamber in the crown of the piston. The problem of noxious fumes developing in the combustion process and possible ways to their removal was treated by A.S. Sokolik and supplemented by material presented by the Prague Automobile Institute that is especially concerned with research in this particular field. Doctor of Technical Sciences A.N. Voinov spoke about the process of combustion from compression and from the heated surface of a homogenous mixture. The paper of Correspondent Member of the AS USSR, N.R. Briling dealt with work on the creation of a short-stroke, fast-speed DB-engine. Candidate of Technical Sciences A.S. Khachiyani considered the possibility of controlling the injection principle by way of a design selection of the elasticity magnitude of the pump and nozzle drive, as was checked in the testing of the DB-67 engine. Candidate of Technical Sciences S.I. Kuptsov has worked out a hydraulic fuel feed system for the DB engine, which simplifies the design. Professor D.M. Vyubov sketched still open problems

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SOV/113-58-11-14/16
A Conference on the Combustion and Carburation in Compressed-Ignition
Engines

concerning the oxygen feed to the superconcentrated mixture. Professor M. A. Khaylov investigated several aspects of heat liberation and also stressed the necessity of creating high-quality measuring devices. Doctor of Technical Sciences M. D. Apishev demonstrated the process of combustion in an engine with a transparent cylinder in a plane-parallel flow, taken by him with a rapid-motion film camera. A. P. Mironov showed a film on the process of fuel injection into a turbulence chamber of cylindrical shape with transparent side walls. The conference concluded that despite great progress in the concepts on the nature of combustion in diesel engines, the developmental requirements of the diesel engine-building sector have not yet been adequately covered. The establishment of a permanent research group on these problems in Moscow, a union of the scientific and technical

Card 4/5

307/113-58-11-14/16
A Conference on the Combustion and Carburation in Compressed-Ignition
Engines

specialists dealing with engines, publication of a scientific and technical journal on internal-combustion engines, and publication of the papers delivered at this conference were agreed upon.

ASSOCIATION: NAMI

1. Internal combustion engines 2. Scientific reports

Card 5/5

11(4)

PHASE I BOOK EXPLOITATION

SOV/2764

Tsentral'nyy nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut

Issledovaniye raspylivaniya i goreniya dizel'nogo topliva (Investigation of Atomization and Combustion of Diesel Fuel) Moscow, Mashgiz, 1959. 115 p. (Series: Its: [Trudy] vyp. 87) 1,275 copies printed.

Ed. of Publishing House: I.A. Vasil'yeva; Tech. Ed.: V.D. El'kind; Managing Ed. for Literature on Automotive, Transport, and Agricultural Machine Building (Mashgiz): I.M. Bauman, Engineer; Editorial Board: M.A. Pashin (Chairman), A.A. Lipgart (Deputy Chairman and Resp. Ed.), A.A. Al'perovich, S.G. Borisov, M.I. Briskin, O.V. Dybov, Ya. G. Zil'berberg, A.S. Lozar'; I.S. Lunev, P.V. Nagayev, Ya.M. Pevzner, V.I. Pryadilov, K.S. Ramayya, O.V. Tamruchi, G.I. Samol', Ye.V. Sedova, N.S. Khanin, A.A. Chapchayev, S.B. Chistozvonov, and E.M. Shkol'nikov.

PURPOSE: This publication is intended for scientists, engineers, and technicians engaged in the production of automobile and tractor engines.

Card 1/3

Investigation of Atomization (Cont.)

SOV/2764

COVERAGE: This issue consists of two articles devoted to research on the atomization and combustion of Diesel fuels with varying physicochemical properties. The tests were conducted with laboratory apparatus without the use of engines. The equipment had a fuel unit of the divided type. The research included the study of flame development during injection from nozzles equipped with pin atomizers; variation of atomization during injection phases and the dependence of the atomization process on the design, regulation, and operation of the fuel apparatus and on the parameters of the medium into which the fuel is injected; effect of the quality of atomization on the ignition and combustion of the fuel; and realization of optimum conditions for the atomization and evaporation of fuels. It was determined that there exists an optimum ignition delay resulting in the highest combustion rates. Bibliographies are given at the end of each article.

TABLE OF CONTENTS:

Kukharev, M.N. Study of Fuel Injection for Use in High-speed Diesel Engines

3

Introduction

3

Description of test equipment and research methods

4

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Investigation of Atomization (Cont.)

SOV/2764

Study of the quality of atomization in a cylinder	16
Stroboscopic study of the quality of atomization	21
Generalization of results according to fineness of atomization	41
Study of flame propagation	44
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Gershman, I. I. Effect of Atomization on the Ignition and Combustion of Diesel Fuel

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Research method	57
Results of experimental research	61
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	115

AVAILABLE: Library of Congress

Card 3/3

TM/gap
1-22-60

LEBEDINSKIY, A.P.; GERSHMAN, I.I., kand.tekhn.nauk

Automobile engines using various fuels. Avt.prom. no.4:18-23 '60.

(MIRA 13:6)

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni nauchno-
issledovatel'skiy avtomobil'nyy i avtomotornyy institut.

(Automobiles--Engines)

GERSHMAN, I.I., kand. tekhn. nauk

Effect of atomization on the ignition and combustion of
diesel fuel. [Trudy] NAMI no.87:57-116 '59.

(MIRA 13:1)

(Diesel fuels) (Atomization) (Combustion, Theory of)

ACC NR: AR6020711

SOURCE CODE: UR/02/3/66/000/002 000 000

AUTHOR: Gershman, I. I., Pik, O. K.

TITLE: Study on the formation and evaporation of fuel films

SOURCE: Ref zh. Dvig vnutr sgor, no. 2, Abs. 2.39.231

REF SOURCE: Tr. Tsentr. n.-i. avtomob. i avtomotorn. in-ta, vyp. 76, 1965, 3-29

TOPIC TAGS: fuel, fuel evaporation

ABSTRACT: An experimental study of processes leading to the development and evaporation of a fuel film from a hot surface in an incoming airflow is described. [Translation of abstract] [KP]

SUB CODE: 21/ SUBM DATE: none/

Card 1/1 *lll*

UDC: 621.436.019.6.001.5

S/262/62/000/004/021/024

I014/I252

AUTHOR: Gershman, I I.

TITLE Ignition and combustion of Diesel fuel as dependent on the quality of atomization

PERIODICAL Referativnyy zhurnal, Silovyye ustanovki, no. 4, 1962, 72, abstract 42.4.450 In collection "Sgoraniye i smeseobrazovaniye v dizelyakh". M., AN SSSR 1960, 52-60

TEXT Investigations were carried out with the standard fuel injection equipment of the КД-35 (KD-35), engine using the ПШ 1.5-15 (RSh 1.5-15) atomizer and standard Diesel fuel. It was established that the degree of atomization of the fuel may be characterized by the mean volume diameter of the drop, which can be determined in practice; when ignition delay is reduced due to an increase in initial air temperature, the mean combustion rate reaches a maximum determined by the quality of mixture formation; for rapid ignition and combustion the fineness and homogeneity of the fuel should vary during injection according to a definite law. There are 5 figures and 7 references.

[Abstracter's note: Complete translation.]

Card 1/1



GEKHMEN, I.P., starshy prepodavatel'

Solution of metric problems for the determination of the relative position of straight lines and planes in projections with numerical marks. Trudy VSTI no.1:75-106 '62.

(MIRA 77:11)

GERSHMAN, L.

High weight gains. Mias. ind. SSSR 27 no.5:39 '56. (MLRA 9:11)

1. Direktor Kokandskoy otkormochnoy bazy.
(Feeding and feeding stuffs)

VASIL'YEV, A.A.; GERSHMAN, M.B.; VASIL'YEVA, T.A.; Primali uchastiye:
MARASANOVA, A.N.; CHERNOBROVA, R.Ye.; MATROSOVA, V.S.

Preparation and properties of sulfonic acid homogeneous
membranes. Zhur.prikl.khim. 35 no.10:2288-2294 0 '62.

(MIRA 15:12)

(Sulfonic acid) (Membranes (Chemistry))

L 13527-66 ENT(m)/ETC(F)/ENG(m) DS/RM

ACC NR: AP6002224 (A) SOURCE CODE: UR/0080/65/030/012/2869/2870

AUTHOR: Vasil'yev, A. A.; Gershman, M. B.; Vasil'yeva, T. A. 41

ORG: none B

TITLE: Preparation and certain properties of homogeneous carboxylic membranes based on a copolymer of styrene and maleic anhydride

SOURCE: Zhurnal prikladnoy khimii, v. 38, no. 12, 1965, 2869-2870

TOPIC TAGS: copolymer, styrene, maleic anhydride, permeability measurement, ion exchange, ion exchange membrane, RESISTIVITY

ABSTRACT: A styrene-maleic anhydride homogeneous copolymer⁵⁵ membrane was prepared and compared with hydrocarbon polymeric membranes containing sulfo-groups for ion exchange selectivity in concentrated alkaline solutions, electrical resistivity and electrochemical stability. The work was performed in an attempt to prepare ion exchange membranes having ion-exchange selectivity and electrical resistivity superior to those of the hydrocarbon polymeric membranes containing sulfo-groups. The copolymer was prepared by heating equimolar quantities of styrene and maleic anhydride in steam for 6 hours. The copolymer product was purified, hydrated for 6 hours at 70°C by treatment with an excess of 10 normal aq-

Card 1/2

UDC: 661.183.123

L 13527-66

ACC NR: AP6002224

uous KOH, washed with methanol, and dried. The membranes (85 microns thick) were drawn from 30% aqueous solution of copolymer. The electrical resistivity (in $\text{ohm}\cdot\text{cm}^2$) of copolymer membranes treated for 1-30 days in 10 normal KOH solution was determined at 20°C. It was found that homogeneous cation-exchange membranes made of styrene-maleic anhydride copolymer display high exchange selectivity in concentrated alkaline solutions. The styrene-maleic anhydride copolymer membranes have higher electrical resistivity than membranes made of hydrocarbon polymer containing sulfo-groups. Orig. art. has: 2 tables.

SUB CODE: 07/ SUBM DATE: 25Feb65/ ORIG REF: 003/ OTH REF: 001

Cord 212. DR

18

C. GERSHMAN, M. I.

THE PREPARATION OF SULFUR DIOXIDE AND PORTLAND CEMENT FROM GYPSUM. S. Royak, M. Gershman, K. Mikhelavskii and B. Nagerova. *J. Chem. Ind. (Moscow)* 1933, No. 7, 33-41. A mixt. of CaSO_4 , clay and coke burned in N_2 contg. 1.2% O_2 yields portland cement and SO_2 . The C reduces CaSO_4 to CaS , which reacts with the remaining CaSO_4 to give CaO and SO_2 . Fe_2O_3 helps the process. Burning of the mixt. should be slow. H. M. Leicester

ASAC - S. A. METALLURGICAL LITERATURE CLASSIFICATION

FROM: 1500000000

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20

The utilization of phosphogypsum for the manufacture of plaster of Paris. M. I. Gershman. *Trans. Sov. Inst. Technol.* (U. S. S. R.) No. 101, 122 (1970). It is shown that the presence of sd. P_2O_5 lowers the mech. strength of plaster of Paris obtained from phosphogypsum. At 10% a good grade of plaster of Paris was obtained from phosphogypsum low in sd. P_2O_5 . I. S. Ioffe.

AND SEE DETAIL LITERATURE CLASSIFICATION

COMMON ELEMENTS										PROCESS AND PROPERTIES INDEX										SIDE INDEX									
<p><i>GERSCHMAN, M. I.</i></p> <p><i>P-I-10</i></p> <p>Production of Portland cement and sulphur dioxide from gypsum. S. M. ROMAN, M. I. GERSCHMAN, K. P. MIRONOVSKI, and Z. I. NAGIBOVA (Trans. All-Union Sci. Inst. Cement, 1935, No. 10, 5-18). A detailed account is given of a laboratory and factory-scale study of the utilization of gypsum for Portland cement manufacture with H_2SO_4 as by-product. A suitable composition of the mix was $CaSO_3$ 80, dried clay 15, and coke, anthracite, etc. 5%.</p> <p>G. N. G.</p>																													
<p>ASB-56A METALLURGICAL LITERATURE CLASSIFICATION</p>																													
<p>100000 01</p>										<p>100000 01</p>										<p>100000 01</p>									
<p>0 1 2 3 4 5 6 7 8 9</p>										<p>0 1 2 3 4 5 6 7 8 9</p>										<p>0 1 2 3 4 5 6 7 8 9</p>									

PROCESSES AND PROPERTIES INDEX

Influence of the burning temperature and fineness of grinding on the properties of plaster gypsum. M. I. Gershman. *Soviet. Material.* 1960, No. 7, 21-7. — With increase of burning temp. for the same fineness of grinding, the normal thickness of the paste decreases. Increase of the temp. to 160–170° accelerates the setting; a further increase retards setting on account of the formation of a modification of sol. anhydrite in the product. Increased fineness of grinding at const. burning temp. leads to no increase of the thickness of the paste and to an acceleration of the setting; the mechanical strength remains nearly unchanged. Hardening can be accelerated by drying the samples at 85° to const. weight during 22 hrs. The rate of hardening depends on the vol. of the samples.
B. R. Stefanovsky

20

Source follows

Source follows

METALLURGICAL LITERATURE CLASSIFICATION

[illegible]

BLASOVA, M. T. - inzhener i, GERSHMAN, M. I. - Kand. tekhn. nauk., KRUT' K. G. - inzh.

Vsesoyuznyy nauchno-issledovatel'skiy institut tsementnoy promyshlennosti (NIITsement)

KORROZIYA TSEMENTOV V PEREMENNYKH USLOVIYAKH

Page 107

SO: Collection of Annotations of Scientific Research Work on Construction, completed in 1950, Moscow, 1951

PERSHIAN, M. I.

"Effect of the Lime Content on Hydraulic Properties of Clays in Fired State." Sub 14 Feb 47, Moscow Order of Lenin Chemicotechnological Institute D. I. Mendeleev

Chem. Technol. Inst.

Dissertations presented for degrees in science and engineering in Moscow in 1947

SO: Sum No. 457, 19 Apr 55

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 5,
p 92 (USSR) 15-57-5-6320

AUTHORS: Skramtayev, B. G., Royak, S. M., Gershman, M. I.

TITLE: Disintegration of Cements Under Constant and Variable
Attacks (Korroziya tsementov v postoyannykh i peremen-
nykh usloviyakh agressii)

PERIODICAL: V sb: Korroziya betona i mery bor'by s ney, Moscow,
Izd-vo AN SSSR, 1954, pp 128-149.

ABSTRACT: Bibliographic entry

Card 1/1

"APPROVED FOR RELEASE: 09/24/2001

CIA-RDP86-00513R000514920006-4

APPROVED FOR RELEASE: 09/24/2001

CIA-RDP86-00513R000514920006-4"

GERSHMAN, M., kand.tekhn.nauk; KRAVCHENKO, I., kand.tekhn.nauk

Rapid hardening and high-strength cement. Stroitel' no.1:28-29 Ja '59.
(MIRA 12:3)

(Cement)

15(6)

DOV/191-59-2-5/15

AUTHORS: Gershman, M.I., and Shakhmagon, N.V.

TITLE: A Study of the Sodium Fluosilicate Used in the Capacity of
a Mineralizer in the Calcination of Cement Raw Mixtures

PERIODICAL: Tsement, 1959, Nr 2, pp 17-22 (USSR)

ABSTRACT: Cements now produced must contain a good deal of active minerals and a minimum quantity of loose calcium oxide. Calcination of clinker of such composition presents some difficulties and usually must be operated under increased temperatures. These difficulties may be levelled by application of mineralizers in the raw material mixture. The by-product from the superphosphate plants at the Urals, Southern regions and Kazakhstan, consisting almost entirely of Na_2SiF_6 , can be successfully applied for the mineralization purposes. The Niitsement (State All-Union Scientific Research Institute of the Cement Industry) has studied the possibility of using sodium fluosilicate, barium sulfate, calcium sulfate, ferric oxide, and ferrous sulfate in the

Card 1/4

SV/101-59-2-5/13

A Study of the Sodium Fluosilicate Used in the Capacity of a Mineralizer
in the Calcination of Cement Raw Mixtures

capacity of mineralizers, the latter being a waste product of the fertilizer plants containing sodium fluosilicate combined with fluorine salts. Mineralizing action of these admixtures was compared with the action of fluorspar. Experiments performed at the Podol'skiy opytyny zavod (Podol'sk Experimental Plant) belonging to the State All-Union Scientific Research Institute of the Cement Industry, with the laboratory electric furnace, followed by experiments with 8 m and 16 m kilns, have proved that the mineralizing properties of sodium fluosilicate are superior to those of fluorspar. The addition of 1.2% of sodium fluosilicate favorably influenced conditions of the calcination process. The amount of loose calcium oxide in the clinker samples was found to be small. Its content was 0.34% against 1.68% found in the clinker calcinated without mineralizer. For verification purposes, samples of clinkers were extracted from the kilns during the calcination

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SC7/101-59-2-5/13

A Study of the Sodium Fluosilicate Used in the Capacity of a Mineralizer
in the Calcination of Cement Raw Mixtures

process. Figure 3 and Figure 4 show the effect of the introduction into the mixture of sodium fluosilicate in the fluid and hard-material periods of the process. In the 8 m kiln, for calcination of the mixture with mineralizer, the temperature has dropped by 80 to 90°, against the temperature measured during the process without mineralizer. Comparative strength tests have proved, for cements obtained from ground clinker produced in 8 and 15 m kilns, with the addition of gypsum, that under compression, the strength was much the same for samples made of cement with or without mineralizer. As for the tensile tests, the strength of cement containing Na_2SiF_6 as mineralizer was greater than that of the cement not containing sodium fluosilicate. Concluding, the authors state that sodium fluosilicate contributes to the activation of the calcination process of clinker. Introduction of 1.2% of Na_2SiF_6 enables

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307/101-59-2-5/13

A Study of the Sodium Fluosilicate Used in the Capacity of a Mineralizer
in the Calcination of Cement Raw Mixtures

to reduce the moisture of the slime by 8%, but it also may create a state of a temporary thickening of the slime. In view of such changeable action, depending upon the initial composition of the raw material mixture, cement plants must thoroughly consider the future effect of the introduction of this mineralizer into their raw material, prior to the calcination. There are 2 graphs and 5 tables.

Card 4/4

GERSHMAN, M. I., kand.tekhn.nauk; TOLOCHKOVA, M. G., kand.tekhn.nauk

Using "white sludge" as binder in making cement. Trudy NIITsement
no.14:89-100 '60. (MIRA 13:11)
(Industrial wastes) (Cement)

SHEYKIN, A.Ye., prof., doktor tekhn.nauk; GENSHEMAN, M.I., kand.tekhn.nauk;
OLEYNIKOVA, N.I., inzh.

Effect of the fineness of cement grinding on the durability of
cement stone under changing reaction of aggressive waters. Trudy
NIISement no.15:39-58 '61. (MIRA 14:9)
(Cement)

GERSHMAN, M.

Machine tools will work longer. NTC 3 no.11:18-19 N '61.
(MIRA 14:10)

1. Otvetsstvennyy sekretar' mnogotirazhnoy gazety "Kirovets"
Moskovskogo zavoda koordinatno-rastochnykh stankov.
(Moscow--Drilling and boring machinery)

BANIT, F.G.; GERSHMAN, M.I.; LEONTENKOV, A.I.; GLEYNIKOVA, N.I.;
PERTSIK, N.G.; PIROTSKIY, V.Z.; SLIVITSKAYA, F.R.;
KHOKHLOV, V.K.; ASTANSKIY, L.Yu., nauchn. red.; TYUTYUNIK,
M.S., red.izd-va; BRUSINA, L.N., tekhn. red.

[Cement industry; its present status and prospects for de-
velopment] 'Tsementnaya promyshlennost': sostoyaniye i per-
spektivy razvitiya. [By] F.G.Banit i dr. Moskva, Gosstroi-
izdat, 1963. 258 p. (MIRA 16:12)

(Cement industries)

UNITED STATES DISTRICT COURT FOR THE DISTRICT OF COLUMBIA

Use of polyvinyl alcohol for the preparation of membranes. Zhur. prikl. khim. 38 no. 7 1975-1978 52 '65. (MIRA 18:7)

"Thermal Effects on the Behavior of the Triboelectric System Lead-Acid-Battery."
and Phys-Elec Sci, Har'kov Inst. of Mech.
Education USSR, Har'kov, 1955. (PL, 10, Feb 55)

SC: Sum. 16, 531, 25 Aug 55 - Survey of Scientific and Technical Dissertations
Defended at USSR Higher Educational Institutions (18)

GERSHMAN, R.B.

Thermal properties of lead-bismuth system in the β -phase
(with summary in English). Zhur.fiz.khim.31 no.7:1573-1576
J1 '57. (MIRA 10:12)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M.Gor'kogo.
(Thermochemistry) (Lead) (Bismuth)

AUTHOR: Gershman, R. B. (Novosibirsk) 76-1-2/32

TITLE: Heat Effects During Melting in the System Lead-Tin-Bismuth
(Teplovyye efekty pri plavlenii v sisteme svinets - olovo - vismut).
(I. The Equilibrium Diagram of the Ternary System Lead-Tin-Bismuth) (I. Diagramma ravновесiya troynoy sistemy Pb-Sn-Bi).

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1958, Vol. 32, Nr 1, pp. 12-18
(USSR)

ABSTRACT: The heat of fusion as well as the temperature dependence of the specific heat of alloys of the ternary system lead-tin-bismuth were measured. This was done in order to check the possibility of an expansion of the "configuration" approximation to ternary metal systems, as well as in order to be able to calculate the surfaces separating the domains of the diagram for the respective ternary system. The measurements were carried out in an adiabatic calorimeter for high temperatures (ref. 5-7). Lead, tin and bismuth were used chemically pure for the production of the alloys. 48 alloys were investigated. The author shows that in all $C = C(t)$ curves three jumps exist. C = specific heat. These jumps correspond to the passage through the plane of the ternary eutectic, the

Card 1/2

Heat Effects During Melting in the System Lead-Tin-Bismuth. 76-1-2/32
(I. The Equilibrium Diagram of the Ternary System Lead-Tin-Bismuth)

surface of the binary eutectic and the surface of the liquidus line. The temperatures of the jumps at the specific heat were used for the structure of the polythermic cross sections. Within the ranges of the respective cross section the phase limits were determined according to experimental data concerning the concentration dependence of the eutectic and peritectic heats in alloys. According to the known polythermic cross sections the isothermic cross section of the ternary diagram at room temperature was built up. It coincides with that of ref. 7 and 8.

The topic was suggested by B. Ya. Pines and discussed with Ya. Ye. Geguzin.

There are 14 figures, and 3 references, 6 of which are Slavic.

Ikharkov State Univ.

SUBMITTED: June 7, 1956

AVAILABLE: Library of Congress

Card 2/2

76-32-2-5/38

AUTHOR: Gershman, R. B.

TITLE: Heat Effects in the Ternary System Lead-Tin-Bismuth on Melting (Teplovyye efekty pri plavlenii v troynoy sisteme svinets-olovovismut)
II. The Calculation of the Heat Effects of the Phase Transition for Ternary Metallic Alloys (II. Raschet teplot fazovykh perekhodov dlya troynykh metallicheskih splavov)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1958, Vol. 32, Nr 2, pp. 258-261 (USSR)

ABSTRACT: The calculation of the heat effects in the phase transitions of ternary alloys were carried out with a "configuration" approximation. As in the calculation of binary alloys (Reference 1) the heat of fusion measured experimentally is assumed to consist of two terms of a sum: the configuration of fusion Q_k and the heating heat within the decomposition domain Q_e . The computation of the configuration melting heat of ternary alloys is given. The total configuration heat of

Card 1/4

76-32-2-5/38

Heat Effects in the Ternary System Lead-Tin-Bismuth on Melting. II. The Calculation of the Heat Effects of the Phase Transition for Ternary Metallic Alloys

fusion of the alloy can be represented as difference of the configuration energies in liquid and solid phase :
 $Q_k = E_{\text{liquid}} - E_{\text{solid}}$. The energy of the ternary solution with the concentrations of the components x_k and x_l can, as was shown in Reference 2, be represented by equation (2). For the general case of a four-phase equilibrium in a three-component system with complete mutual solubility of the components in the liquid phase (which is limited by the solubility of the components in the solid phase and the formation of the ternary eutectic from solid solutions) the equation (3) is obtained, taking into account formula (1). Based on it the formula (6) for the whole configuration heat of fusion is obtained. For a three- and two-phase equilibrium the formula (6) takes a more simple form. - The heat of the alloy of the concentration $x_k x_l$ at the transition through the plane of the ternary eutectic from the domain with three solid phases $\alpha + \beta + \gamma$ to domains where one of the phases is liquid, i.e. within the domain $\alpha + \gamma + L$, $\alpha + \beta + L$, $\beta + \gamma + L$ - can be expressed by the equation (7) as drop

Card 2/4

76-32-2-5/38.

Heat Effects in the Ternary System Lead-Tin-Bismuth on Melting. II. The Calculation of the Heat Effects of the Phase Transition for Ternary Metallic Alloys

of energies before and after the passage through the eutectic plane. From this equation the formula for the wanted heat at the passage through the eutectic plane (8) is then obtained, taking into account the formula (5) for the configuration energies of the phases. Different from the case of a four-phase equilibrium the transition takes place through the surface of the binary eutectic in the ternary system, i.e. in the case of a three-phase equilibrium within a certain interval of temperature. - In the second chapter the constants of the ternary system are determined. These constants obtained for the lead-tin-bismuth system offer the possibility to build up by calculation the phase boundary surfaces for the given system. The comparison of the formulae given here for the calculation of the heat of phase transitions with experimental results for the lead-tin-bismuth-system showed a complete agreement as well as the applicability of these formulae within the whole range of concentration of the

Card 3/4

76-32-2-5/38

Heat Effects in the Ternary System Lead-Tin-Bismuth on Melting. II. The Calculation of the Heat Effects of the Phase Transition for Ternary Metallic Alloys

given system. Professor B. Ya. Pines was interested in this work and arranged a discussion. There are 1 figure, and 5 references, which are Soviet.

ASSOCIATION Khar'kovskiy gosudarstvennyy universitet (Khar'kov State University)

SUBMITTED: June 7, 1956

1. Bismuth-lead-tin systems--Phase studies 2. Bismuth-lead-tin systems--Thermodynamic properties 3. Mathematics

Card 4/4

S/137/62/000/003/103/191
A060/A101

AUTHORS: Gershman, R. B., Belikov, A. M., Vasil'yeva, S. M.
TITLE: Curie temperature of cementite alloyed with nickel, manganese, and silicon
PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 4, abstract 3I24
("Sb. nauchno-tekhn. tr. N.-1. in-t metallurgii Chelyab. sovnareshkoza", 1961. no. 3, 195-199)

TEXT: A determination was made of the Curie temperature T_C of alloyed cementite as a function of its Ni, Mn, and Si content. The investigation made use of steel with the following composition (in %): C 0.55 - 0.70, Mn 0.16-4.33, Ni 0.12 - 11.1, Cr 0.09 - 0.20, Si 0.020 - 0.028. It was established that Ni has no noticeable effect upon the T_C of the cementite. Mn strongly lowers the T_C and, at high Ni contents the T_C is located in the neighborhood of 0°C . The Si seems to increase the T_C of the cementite but since a large quantity of non-metallic silicate impurities is contained in the steel, making it impossible to obtain a pure carbide deposit, the problem of the influence of Si requires additional investigation.

A. Rusakov

[Abstracter's note: Complete translation]
Card 1/1

S/126/62/014/005/009/015
E111/E435

AUTHORS: Belikov, A.N., Gershman, R.B.

TITLE: Characteristic temperature of alpha-iron alloyed with manganese, molybdenum, silicon and carbon

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.5, 1962, 766-769

TEXT: The object of this work was to estimate the atomic interaction forces ($m\epsilon^2$) involved when alloying alpha-iron. The characteristic temperature was found from the elastic moduli as measured by the dynamic resonance method. The single-phase solid solutions studied contained up to the following weight percentages of alloying elements: 5.4 Mn, 5.3 Mo, 6.3 Si, 1.2 C. Within these concentrations the characteristic temperature of alpha-iron changes only just noticeably on alloying with silicon and hardly at all on alloying with molybdenum. Manganese (5.8 at.%) and carbon (5.47 at.%) lower the temperature by 6 and 10°C respectively. Within the same concentration ranges the value of $m\epsilon^2$ falls by 3, 5 and 7% on alloying alpha-iron with manganese, silicon and carbon respectively, and rises by

Card 1/2

Characteristic temperature ...

S/126/62/G14/005/G09/015
E111/E435

2.5% on alloying with molybdenum. There are 3 tables.

ASSOCIATION: Chelyabinskiy nauchno-issledovatel'skiy institut
metallurgii (Chelyabinsk Scientific Research
Institute of Metallurgy)

SUBMITTED: May 18, 1962

Card 2/2

GERSHMAN, R.B.; MEL'NIKOVA, E.N.

Elasticity modulus of carbon steel. [Sbor. trud.] Nauch.-issl.
inst.met. no.4:151-153 '61. (MIRA 15:11)
(Steel--Analysis)
(Elasticity)

BELIKOV, A.M.; GEPHMAN, R.B.

Characteristic temperature of α -iron alloyed by manganese
molybdenum, silicon and carbon. Fiz.met.i metalloved. 14
no.5:766-769 N '62. (MIRA 15:12)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.
(Iron alloys—Thermal properties)

GERSHMAN, R.B., inzh.; GELIKOV, A.M., inzh.; KOCHNOV, V.Ye., inzh.;
GOL'DSHTEYN, V.Ya., inzh.; VASIL'YEVA, S.M.

Effect of a bend in electrical steel on its magnetic
properties. Elektrichestvo no.11:62-63 N '63.

(MIRA 16:11)

1. Nauchno-issledovatel'skiy institut metallurgii,
Chelyabinsk.

KOCHNOV, V.Ye.; GENSHMAN, R.B.; BELIKOV, A.M.

Methods of revealing the substructure of metals. Fiz. met. i metallo-
ved. 16 no.1:152-155 J1 '63; (MIRA 16:9)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.
(Metallography) (Metals—Pickling)

MOLOTOLOV, B.V.; KOCHNOV, V.Ye.; BELIKOV, A.M.; GERSHMAN, R.B.

Methods of revealing the substructure in electrical steel. Stal'
23 no.3:251-252 Mr '63. (MIRA 16:5)

1. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy
metallurgii i Chelyabinskiy nauchno-issledovatel'skiy institut
metallurgii.

(Iron-silicon alloys—Pickling)

S/279/63/000/001/011/023
E075/E452

AUTHORS: Gershman, R.B., Belikov, A.M., Zvereva, V.A.,
Vasil'yeva, S.M. (Chelyabinsk)

TITLE: Curie points of cementite after isolation from alloy
steels

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye
tekhnicheskikh nauk. Metallurgiya i gornoye delo.
no.1, 1965, 119-120

TEXT: Since the magnetic properties of isolated alloyed
cementite have not been adequately studied and existing literature
data are contradictory, the authors determined the Curie points of
cementite isolated from seven alloy steels (composition given).
The steels were induction melted and the ingots forged into rods
from which specimens were prepared. The specimens were homogenized
and hardened from 950 or 1300°C in a 10% potassium hydroxide
aqueous solution or oil. Each type of steel was annealed by
5 to 6 different methods to obtain the maximum content of the alloy
element in cementite. The cementites were isolated electrolytic-
ally. The proportions of the alloying elements in the carbide
residues were determined chemically and the amounts dissolved in a
Card 1/2

Curie points of cementite ...

S/279/63/000/001/011/023
E075/E452

given carbide were determined from changes in volume of the elementary lattice or from the spacing. The effect of temperature on the magnetization of carbide powder was determined with a magnetic balance in fields far removed from saturation. It was found that the Curie point of the cementite was not changed by alloying the steel with nickel, niobium or vanadium. Alloying the steel with tungsten somewhat lowered the Curie point temperature and alloying the steel with molybdenum reduced it still more. Manganese, which dissolves in cementite in large quantities, caused a very marked decrease in the Curie point temperature. There are 1 figure and 2 tables.

SUBMITTED: April 24, 1962

Card 2/2

KOCHNOV, V.Ye.; ZVEREVA, V.A.; GERSHMAN, R.B.; VASIL'YEVA, S.M.

Formation and decomposition of austenite in cold-rolled transformer steel. Fiz. met. i metalloved. 19 no.6:926-929 Je '65. (MIRA 18:7)

1. Nauchno-issledovatel'skiy institut metallurgii, Chelyabinsk.

5 (3)

AUTHORS: Kostsova, A. G., Gershman, R. Kh., SOV/79-29-6-52/72
Akin'shina, V. T.

TITLE: Investigation in the Field of the Alkane Sulfonic Acids
(Issledovaniye v oblasti alkansul'fokisl'ot). XIX. Chlorination
of the N-Aryl Amides of Methane Sulfonic Acid
(XIX. Khlorirovaniye N-arilamidov metansul'fokisl'oty)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 6,
pp 2012-2016 (USSR)

ABSTRACT: The object of the present paper is the chlorination of anilide,
of the toluidides and anisidides of methane sulfonic acid.
The anilide chlorinates with the formation of 2,4-dichloro
anilide, as is the case also with the anilides of the ethane
and butane sulfonic acids (Ref 1); in the presence of ZnO
better yields were obtained; the p-toluidide is chlorinated
to the tetrachloro-p-toluidide; in this case however, ZnO
inhibits the reaction. In the chlorination of the o-toluidide
a rapid formation and a separation of the crystalline monochloro-
o-toluidide is observed during the first 5 minutes; in the
case of a longer duration of the chlorination (up to 45 min)
a mixture of mono- and tetrachloro-o-toluidides is formed.

Card 1/3

Investigation in the Field of the Alkane Sulfonic SOV/79-29-6-52/72
 Acids. XIX. Chlorination of the N-Aryl Amides of Methane Sulfonic Acid

The chlorination of the o- and p-anisidides leads to the dichloro anisidides; in the case of the p-anisidide, the tetrachloro benzoquinone is formed as side-product, in the case of o-anisidide, tetrachloro-o-anisidide is formed. The chlorination was carried out by means of gaseous chlorine. If the chlorination takes place with chlorine dissolved in dichloro ethane, monochloro toluidides (optimum ratio 1:2) result as main products in the chlorination of the p- and o-toluidides (at ratios of the chlorine to the initial toluidide 1:1, 1:2, 1:3, 1:4). In this connection tetrachloro toluidides form as side products in very small amounts. The determination of the position of chlorine in the nucleus by means of hydrolysis into the corresponding amine is not quite reliable since the isomeric monochloro-o-toluidines and their N-acetyl derivatives have very close constants

[(Formulas (1) and (2))]. Thus, the influence exercised by the structure of the N-arylamides and the influence exercised by the reaction conditions on the character of the forming compounds was shown.

Card 2/3

Investigation in the Field of the Alkane Sulfonic SOV/79-29-6-52/72
Acids. XIX. Chlorination of the N-Aryl Amides of Methane Sulfonic Acid

There are 5 tables and 4 references, 3 of which are Soviet.

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet (Voronezh State
University)

SUBMITTED: March 28, 1958

Card 3/3

GERSHMAN, R. N. Cand Med Sci -- (diss) "Data on the clinic and course of
tumors of the vermis cerebelli." Kiev, 1957. 17 pp (Kiev Order of Labor Red
Banner Med Inst im Academician A. A. Bogomolets). (KL, 4-58, 85)

GERSHMAN, R.N. (Ziyev)

Peculiarities of the clinical aspects and course of medulloblastomas
of the cerebellar peduncle. Vrach. delo no.3:233-235 Mr '57
(WLRA 10:5)

1. Chetvertaya klinicheskaya bol'nitsa Oktyabr'skogo rayona.
(BRAIN--TUMORS)

GERSHMAN, R.N.

Peculiarities of the clinical aspects and course of tumors of the
vermis cerebelli. Vrach, delo no.8:791-795 Ag '57. (MLBA 10:8)

1. Chetvertaya gorodskaya bol'nitsa
(CEREBELLUM--TUMORS)

GERSHMAN, S.A.

Modified method of surgery of middle ear. Vest. otorinolar., Moskva
14 no. 5:38-42 Sept-Oct 1952.
(GLML 23:3)

1. Candidate Medical Sciences. 2. Of First Hospital, Belaya Tserkov'.

GERSHMAN, S.A., kandidat meditsinskikh nauk.

Topographic and anatomic variations in location of the antrum and its relation to the walls of the external auditory canal. Vest.oto-rin.
16 no.1:33-34 Ja-F '54. (MLRA 7:3)

1. Iz pervoy bol'nitsy g. Belaya TSerkov'. (Antrum)

5 H
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discovered

534.843

5637. The correlation coefficient as a criterion of the acoustical quality of a closed room. S. G. GERSHMAN. *Zh. Tekh. Fiz.*, 21, 1492-6 (No. 12, 1951) In Russian.

A preliminary account of a theoretical and experimental study. The dependence of the auto-correlation function R on the time interval of correlation is represented by curves of calculated and measured values, for several different audio-frequency bands, in a non-reverberant room. Comparison of values of R for these and for rooms with various degrees of reverberation, and sounds with various directional properties and frequency spectra, indicate that in determining the sound quality of a room, R is a more sensitive parameter than the reverberation time, since R to a greater extent characterizes the sound process at a given point.

V. QUILLON

W. L. L. L.

"Statistical Control of Processes in Air Pollution Activities," a report
read at the Conference of the Activities Commission of the U.S. in - Conference 1-5, Feb
1, 61.

1-11010, 14 Apr 61.

GERSHAMN, S. G.

USSR/Physics - Noises, Measurement of 1 Sep 53

"Interference Method for Measuring the Coefficients of Correlation of Stationary Noises," S. G. Gershamn, Phys Inst im Lebedev, Acad Sci USSR

DAN SSSR, Vol 92, No 1, pp 33-35

Describes interference method for obtaining of correlational functions and coef of correlation of stationary noises. Comparison with computed values showed good agreement. Remarks that the results expounded were obtained in 1948-1949. Presented by Acad M. A. Leontovich 2 Jul 53.

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